NISTTech

Controlled Vesicle Self-Assembly In Continuous Two Phase Flow Microfluidic Channels

Description

This technology results in the automatic and reproducible production of high quality liposomes. By tuning the flow rates in microfluidic channels, the physical characteristicsof the resultant liposome preparation can be facilely controlled over the range of 100nm to 300nm, and the liposome preparations are monodisperse in size.

Applications

- **Liposome applications**
  Drug delivery, drug flavorings, cosmetics, controlled drug release, pharmaceutical and value-added drugs

Advantages

- **Fine control of liposome size and polydispersity**
  More reproducible and uniform formulations for therapeutic drug delivery

Abstract

Methods for the formation of liposomes that encapsulate reagents in a continuous 2-phase flow microfluidic network with precision control of size, for example, from 100 nm to 300 nm, by manipulation of liquid flow rates are described. By creating a solvent-aqueous interfacial region in a microfluidic format that is homogenous and controllable on the length scale of a liposome, fine control of liposome size and polydispersity can be achieved.

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Related Items

- Article: Low-Cost Microfluidics Can Be a Sticky Problem

References

- U.S. Patent Application #20050112184
- Docket: 04-003US

Status of Availability

This invention is available for licensing.

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